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Caregiver-Youth Shared Recreation and Adolescent Well-being: The Moderating Roles of Motivation, Mindset, and Parenting Style

Bakımveren–Genç Ortak Rekreasyonu ve Ergen İyi Oluşu: Motivasyon, Zihniyet ve Ebeveynlik Stilinin Düzenleyici Rolleri

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Abstract

Adolescence represents a critical developmental period for establishing well-being patterns that extend into adulthood. While recreational engagement supports youth development, how caregiver involvement influences these outcomes remains underexplored. This study examined whether personal and relational factors moderate the association between caregiver–youth recreational engagement and adolescent well-being. A cross-sectional survey of 398 adolescents (216 male, 182 female) aged 14–18 across five Western nations assessed psychological distress, attachment security, motivation, goal orientation, mindset, and perceived parenting style. Drawing on attachment theory, self-determination theory, and self-expansion theory, 56 moderation analyses were conducted across motivational, cognitive, and parenting-related moderators. To control for inflated Type I error due to multiple testing, a Benjamini–Hochberg false discovery rate correction was applied across all interaction terms. Following correction, four interaction effects remained statistically significant. External regulation consistently moderated associations between recreational engagement and psychological distress, such that greater caregiver involvement was linked to higher depression, anxiety, and stress among youth whose participation was externally pressured. In addition, authoritative parenting moderated the association between recreational engagement and attachment, with stronger attachment observed in autonomy-supportive parenting contexts. Other nominal interaction effects did not remain significant after correction and should be interpreted as exploratory. Overall, findings suggest that caregiver–youth recreation is a context-dependent process, with motivational and relational quality shaping modest links to adolescent well-being.

Keywords: Youth Well-Being, Recreational Engagement, Attachment, Motivation, Parenting Style

Öz

Ergenlik, yetişkinliğe uzanan iyi oluş örüntülerinin şekillendiği kritik bir gelişim dönemini temsil eder. Rekreasyonel katılım gençlerin gelişimini desteklese de, bakım verenlerin bu süreçteki rolünün sonuçları nasıl etkilediği yeterince araştırılmamıştır. Bu çalışma, bakım veren–ergen rekreasyonel katılımı ile ergen iyi oluşu arasındaki ilişkinin kişisel ve ilişkisel faktörler tarafından düzenlenip düzenlenmediğini incelemiştir. Beş Batılı ülkede 14–18 yaş aralığında 398 ergenle (216 erkek, 182 kız) yürütülen kesitsel bir anket çalışmasında psikolojik sıkıntı, bağlanma güvenliği, motivasyon, hedef yönelimi, zihniyet ve algılanan ebeveynlik tarzı değerlendirilmiştir. Bağlanma kuramı, öz-belirleme kuramı ve öz-genişleme kuramına dayanarak motivasyonel, bilişsel ve ebeveynlikle ilişkili düzenleyiciler kapsamında 56 moderasyon analizi gerçekleştirilmiştir. Çoklu testlerden kaynaklanan artmış Tip I hata olasılığını kontrol etmek amacıyla tüm etkileşim terimlerine Benjamini–Hochberg yanlış keşif oranı düzeltmesi uygulanmıştır. Düzeltme sonrasında dört etkileşim etkisi istatistiksel olarak anlamlı kalmıştır. Dışsal düzenleme, rekreasyonel katılım ile psikolojik sıkıntı arasındaki ilişkide tutarlı bir düzenleyici olarak ortaya çıkmış; bakım veren katılımı, etkinliğe dışsal baskı nedeniyle katılan gençlerde daha yüksek depresyon, kaygı ve stres düzeyleriyle ilişkili bulunmuştur. Ayrıca, otoritatif ebeveynlik rekreasyonel katılım ile bağlanma arasındaki ilişkiyi düzenlemiş; daha özerklik destekleyici ebeveynlik bağlamlarında daha güçlü bağlanma gözlenmiştir. Düzeltme sonrasında anlamlılığını korumayan diğer nominal etkileşim etkileri keşfedici nitelikte değerlendirilmelidir. Genel olarak bulgular, bakım veren–ergen rekreasyonunun bağlama duyarlı bir süreç olduğunu ve motivasyonel ile ilişkisel niteliğin ergen iyi oluşuyla olan mütevazı bağlantıları şekillendirdiğini göstermektedir.

Anahtar Kelimeler: Genç İyi Oluşu, Rekreasyonel Katılım, Bağlanma, Motivasyon, Ebeveynlik Stili

Introduction

Adolescence represents a critical developmental period for establishing well-being patterns that extend into adulthood. During these formative years, youth develop coping strategies, relational skills, and self-regulatory capacities that influence long-term psychological health (Copeland et al., 2021). While mental health challenges affect approximately one in seven adolescents globally (World Health Organization, 2021), this period also presents significant opportunities for promoting resilience, positive development, and family connection through accessible, everyday strategies. Understanding how to optimize these developmental supports is essential for fostering adolescent well-being across diverse contexts (Lerner et al., 2018).

Within the field of positive psychology, growing attention has been given to identifying everyday pathways to enhance well-being (Seligman, 2011). Shared recreational activities may represent a relational context through which youth and their caregivers can cultivate connection, competence, and joy-core components of well-being (Keyes, 2002; Ryan & Deci, 2001).

Recreational engagement—defined here as the active participation in leisure activities such as sports, art, dance, or nature-based play—represents a promising and accessible pathway for enhancing adolescent well-being. Research demonstrates that youth involved in recreational activities report higher self-esteem, better psychosocial functioning, and greater life satisfaction (Adachi & Willoughby, 2014; McMahon et al., 2017). Beyond reducing symptoms of depression and anxiety (Boone & Leadbeater, 2006), recreation supports positive youth development by building competence, fostering social connection, and providing contexts for identity exploration (Zarrett et al., 2009). Importantly, youth engaged in organized recreation demonstrate enhanced coping skills and lower engagement in risky behaviors (Miller & Hoffman, 2009; Pedersen et al., 2017), suggesting recreation's potential as a protective development resource.

While structured therapeutic programs such as wilderness and adventure therapy have successfully harnessed recreational activities to promote youth well-being (Hoag et al., 2014; Gass et al., 2012), these interventions remain expensive, physically demanding, and limited in accessibility. In contrast, everyday recreational activities shared within families represent an underexplored, yet promising, avenue for enhancing youth well-being with the potential to strengthen caregiver-youth bonds and support positive development. Given that secure caregiver relationships are foundational to adolescent well-being (Bowlby, 1988) and that family-based interventions offer scalability advantages (Kumpfer & Alvarado, 2003), understanding how caregiver involvement in recreation influences youth well-being outcomes represents an important gap in positive youth development research. Such knowledge could inform the development of low-cost, relationally grounded strategies that are accessible across diverse family and community contexts.

Purpose and Hypotheses

This study investigated whether recreational engagement between youth and caregivers promotes youth well-being, defined as lower levels of psychological distress (i.e. depression, anxiety, and stress) and higher levels of perceived attachment. Specifically, the study examined how individual and relational factors—motivation, goal orientation, mindset, and perceived parenting style—moderate this relationship. These variables were selected for their theoretical relevance to attachment theory, self-determination theory, and self-expansion theory.

According to attachment theory (Bowlby, 1988), emotionally attuned interactions with caregivers foster a sense of security and trust. Recreational engagement may reinforce secure attachment, particularly when the caregiver is perceived as warm, responsive, and autonomy-supportive- hallmarks of an authoritative parenting style (Baumrind, 1971;1991; Steinberg, 2001).

From the lens of self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000), youth are expected to experience higher well-being when recreational engagement satisfies their core psychological needs for autonomy, relatedness, and competence. Adolescents are intrinsically motivated or mastery-oriented may benefit more from such activities, as these orientations support self-directed growth (Schneider & Kwan, 2013).

Growth mindset (Dweck, 2006) reflects the belief that personal abilities can improve through effort. Youth with a growth mindset may perceive challenges during recreation as opportunities for development, enhancing both the experience and their connection to their caregiver (Yeager & Dweck, 2012). These factors are essential for reducing distress and promoting attachment.

Finally, self-expansion theory (Aron et al., 2013) suggests that close relationships serve as a platform for personal growth by allowing individuals to incorporate new experiences and perspectives into their sense of self. Recreational engagement with caregivers may support this process when fostering shared exploration, emotional relatedness, and mutual investment. Youth who approach recreation with mastery-oriented or growth-focused goals—prioritizing learning and self-development over performance—may be especially likely to experience well-being benefits in this context (Dweck & Leggett, 1988; Nicholls, 1984). These orientations reflect a desire to expand personal capacity, which may align with both the relational closeness and personal growth that self-expansion theory describes.

Based on these frameworks, the study examined the following hypotheses:

1. Youth who are intrinsically motivated will report greater well-being benefits from recreational engagement with caregivers.

2. Youth with a growth mindset and task-oriented goals—focused on learning and development rather than performance—will report higher well-being when engaging in recreation with caregivers.

3. Youth who engage in recreation with caregivers perceived as authoritative will also report higher well-being.

Figure 1 shows theoretical framework depicting pathways to enhanced well-being through caregiver-youth recreation:

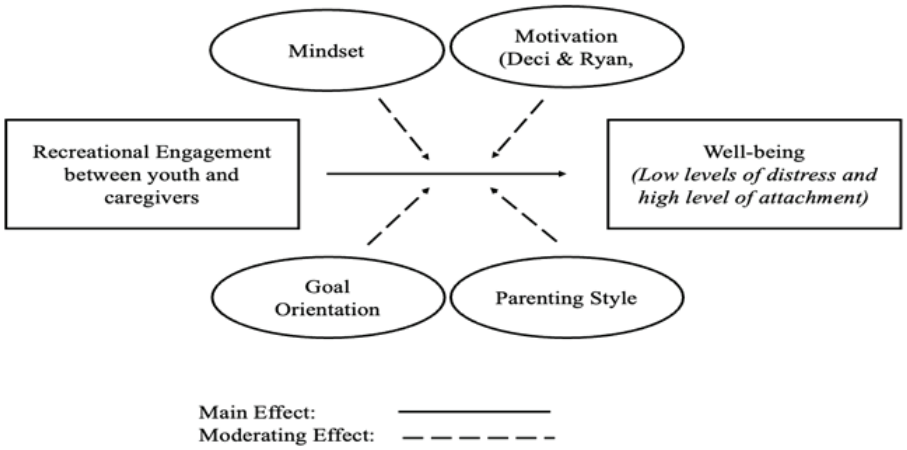

Figure 1. Theoretical framework depicting pathways to enhanced well-being through caregiver-youth recreation.

Method

Participants

A total of 404 adolescents completed the questionnaire: 216 males (53.5%), 182 females (45.0%), and 6 (1.5%) who identified as "other." Due to the small number of participants identifying as "other," these cases were excluded from analyses, resulting in a final sample of 398 (216 males, 54.3%; 182 females, 45.7%). Participants ranged in age from 14 to 18 years, with the largest proportion aged 18 (n = 161, 40.5%), followed by 16 (n = 115, 28.9%), 17 (n = 93, 23.4%), 15 (n = 23, 5.8%), and 14 (n = 6, 1.5%). The mean age was 16.95 years (SD = 1.04).

Most participants cited as residing in the United States (n = 225), followed by the United Kingdom (n = 72), Canada (n = 67), Australia (n = 20), and New Zealand (n = 14). These countries were selected for their cultural and linguistic similarities, offering comparable recreational opportunities and family dynamics while enabling broader generalization across Western youth populations.

Procedure

Ethical approval for this study was granted by the Human Research Ethics Committee at Charles Darwin University (Approval No: H19093). Following approval, the survey was distributed via Pollfish, a third-party participant recruitment platform, and was available for 23 days from 17 September to 12 October 2020.

Pollfish was selected for several methodological advantages aligned with this study's objectives. First, its random device engagement (RDE) sampling—a probability-based method that delivers surveys through mobile applications—provided access to adolescents in their natural digital environments without requiring institutional gatekeeping that might bias toward more accessible or compliant families. Second, the platform's demographic quota functionality enabled precise targeting of the 14-18 age range

across five culturally similar Western nations (the United States, United Kingdom, Canada, Australia, and New Zealand), supporting cross-national generalizability while maintaining sample homogeneity. Third, anonymous online recruitment can help reduce social desirability, a critical consideration when measuring sensitive topics such as mental health symptoms and perceptions of parenting quality (Duffy et al., 2005; Tourangeau, 2013).

RDE operates through partnerships with mobile application publishers, recruiting users who meet predefined demographic criteria. Potential participants are randomly prompted within apps and invited through a double opt-in mechanism to enhance response authenticity. Each participant receives a unique device identifier preventing duplicate responses, and incentivization occurs through in-app reward credits rather than direct payment, reducing motivation-related response bias.

Methodological Considerations

The data collection approach utilized for this study necessarily prioritized breadth and anonymity over depth of contextual detail. Variables such as socioeconomic status, ethnicity, family structure, and urban vs. rural residence were not assessed based on the need to minimize survey burden for adolescent participants. While these factors may influence recreational access and family dynamics, the study's focus on within-person psychological and relational processes (motivation, mindset, perceived parenting styles) meant that examining variance in these internal experiences was prioritized over demographic satisfaction.

Ethical Considerations for Adolescent Consent

This study obtained direct consent from adolescent participants aged 14-18 years without requiring additional parental authorization. This approach was approved by the institutional ethics board and aligns with established ethical frameworks for adolescent research (Santelli et al., 2003; APA, 2018). The waiver of parental consent was justified on the following grounds:

1. **Minimal risk research:** The study involved no more than minimal risk—participants completed validated questionnaires about their own thoughts, feelings, and recreational activities, with no deception, physical intervention, or collection of identifiable information. Research ethics guidelines recognize that parental consent requirements may be waived for minimal-risk survey research where youth can provide informed consent independently (U.S. Department of Health and Human Services, 45 CFR 46.408; National Health and Medical Research Council, 2007).

2. **Protection of participant autonomy and confidentiality:** Requiring parental consent could have compromised the validity and ethical integrity of the research in several ways. Adolescents experiencing family conflict, controlling caregivers, or strained caregiver relationships—populations of particular interest to this study—might have been systematically excluded if parents declined consent or if youth feared caregiver awareness of their participation. Given that the study assessed perceptions of parenting quality, requiring caregiver involvement might have also introduced potential for coercion or response bias (Diviak et al., 2004; Tigges, 2003).

3. **Developmental appropriateness of direct consent:** Adolescents aged 14-18 years possess the cognitive capacity to understand research procedures, weigh risks and benefits, and provide meaningful informed consent (Weithorn & Campbell, 1982). In many jurisdictions, minors in this age range can independently consent to health services; analogously, they can ethically consent to participate in low-risk survey research about their own psychological experiences (Santelli et al., 2003).

4. **Methodological considerations in anonymous online recruitment:** The anonymous nature of mobile-based recruitment meant researchers had no means of verifying family circumstances, parental identity, or even the accuracy of reported ages beyond platform protections. Attempting to collect parental consent through unverifiable online mechanisms (e.g., checkbox attestation) would have created an illusion of ethical protection without meaningful oversight, while potentially introducing selection bias toward families with greater parental monitoring or digital access (Liu et al., 2017).

Informed Consent Procedures

Prior to survey access, participants reviewed a detailed information sheet explaining the study's purpose, procedures, potential risks (minimal psychological discomfort when reflecting on family relationships), benefits (contributing to youth well-being research), and their right to withdraw without consequence. Consent was indicated by selecting "I consent" before proceeding; those who selected "I do not consent" were immediately exited from the survey. No personal identifiable information was collected at any stage. This approach balanced respect for adolescent autonomy, protection of vulnerable populations, and methodological rigor while maintaining ethical integrity in accordance with institutional and international guidelines for research involving minors.

Measures

This study employed a set of established, validated instruments selected to align with the research objectives. Each measure was chosen for their relevance in assessing adolescents' well-being, attachment, parenting perceptions, motivation, goal orientation, mindset and recreational engagement. Where necessary, items were adapted for clarity and contextual fit (e.g. substituting "caregiver" for "mother/father"). Reliability indices (Cronbach's α) from the current sample are reported for each scale.

Depression, Anxiety, & Stress Scale – 21 items (DASS-21)

The DASS-21, developed by Lovibond and Lovibond (1995), is a 21-item survey that consists of three self-reported measures designed to assess an individual's perception of their level of depression, anxiety, and stress. Each emotional state is measured by seven items, which are ranked on a 4-point Likert scale, where the participant must indicate the extent to which each item applied to them over the past week. Examples of items on the DASS-21 include: *I could not seem to experience any positive feeling at all* (Depression); *I was worried about situations in which I might panic and make a fool of myself* (Anxiety); *I tended to overreact to situations (Stress).*

For this study, the DASS-21 was utilized to assess the participant's reported level of well-being. Lower reported distress was associated with higher well-being, while high levels of reported distress were associated with lower well-being. The Cronbach's alpha for each of the three variables revealed the following scores: depression (0.88), anxiety (0.82), and stress (0.83).

The Inventory of Parent & Peer Attachment (IPPA)

The IPPA is a 28-item self-report measure, developed by Armsden and Greenberg (1987), that assesses the degree to which adolescents feel attached to their parents and peers across the three dimensions of the attachment relationship: trust, communication, and alienation. Individuals must rank each item on a 5-point scale ranging from *Almost Never or Never* to *Almost Always or Always*.

The IPPA includes a separate measure to gauge the reported level of attachment of youth to their mother and father respectively. For the present study, the measure was modified to include a single caregiver attachment scale. Accordingly, the terms *mother* and *father* were replaced with *caregiver*. Sample items for measuring caregiver attachment included: *My caregiver respects my feelings* (trust); *I like to get my caregivers view on things I'm concerned about* (communication); and *I get easily upset around my caregiver* (alienation). The Cronbach's alpha for the caregiver attachment items was 0.93. The peer attachment subscale was excluded from this study.

Parenting Styles & Dimensions Questionnaire

The G1 shortened version of the Parenting Styles and Dimensions Questionnaire, developed by Robinson et al. (2001), was used to assess the parenting style of caregivers. The G1 version, in contrast to alternative versions, assesses the youth's perception of their caregivers parenting style. The shortened version of the G1 consists of 32 items that measure the three main parenting styles identified by Baumrind (1971): authoritative, authoritarian, and permissive.

This questionnaire is typically presented to participants in two versions: one to evaluate the parenting style of their mother and one for their father. For this study, a single version was used with the term *caregiver* replacing mother and father. Participants were instructed to answer the items in relation to whomever they considered their primary caregiver to be. Items on the PSDQ include: *My caregiver was responsive to my feelings and needs* (authoritative); *My caregiver spanked me when I was disobedient* (authoritarian); and *My caregiver stated punishments to be but did not actually do them* (permissive). The reliability analysis of the parenting dimensions via Cronbach's alpha resulted in the following scores: authoritarian (0.88), authoritative (0.92), and permissive (0.62).

The Behavioral Regulation in Exercise Questionnaire (BREQ-2)

The BREQ-2 was developed by Markland and Tobin (2004) to assess the underlying reasons individuals engage in exercise. The measure consists of 19 items that are divided into five motivation factors: amotivation (e.g., "I don't see why I should exercise"); external regulation/extrinsic motivation (e.g., "I exercise because other people say I should"); introjected regulation (e.g., "I feel ashamed when I miss an exercise session"); identified regulation/intrinsic motivation (e.g., "It is important to me to exercise regularly"); and intrinsic regulation (e.g., "I enjoy my exercise session"). This multidimensional structure allowed the present study to examine how qualitatively different forms of motivation uniquely moderated the relationship between caregiver-youth recreational engagement and adolescent well-being, rather than treating motivation as a unitary construct.

The items on the BREQ-2 are traditionally rated on a 7-point scale. However, for this questionnaire, the item responses were ranked on a 4-point scale ranging from 1, *not true*, to 4, *very true*. This 4-point scale made it easier for participants who were potentially completing this questionnaire on their mobile devices.

The Cronbach alpha scores for each of the variables were: amotivation (0.84), external regulation (0.76), introjected regulation (0.79), identified regulation (0.69), and intrinsic regulation (0.84).

The Task and Ego Orientation in Sports Questionnaire (TEOSQ)

The TEOSQ (Duda, 1989) is a 13-item scale that was designed to understand how individuals define success in sports. Individuals may define success in sports as being task-oriented, wherein they desire skill mastery (e.g., *I learn a new skill, and it makes me want to practice more*). Alternatively, individuals may be ego-oriented, wherein they define success in sports as being the best (i.e., *The others cannot do as well as me*).

The items are ranked on a 5-point scale that ranges from 1, *Strongly disagree*, to 5, *Strongly agree*. The participants were asked to complete this scale twice: once in relation to how they agreed with each item and once in relation to how they felt their significant caregiver related to each item. The Cronbach alpha revealed the following scores: ego self (0.82), task self (0.85), ego caregiver (0.82), and task caregiver (0.85).

Implicit Theories of Intelligence Scale

The Implicit Theories of Intelligence Scale (Dweck, 2000) was utilized to understand the influence of mindset on youths' recreational engagement with caregivers and their well-being. The version of the scale included in the study questionnaire was the three-item measure that included: *The kind of person someone is, is something basic about them, and cannot be changed very much; People can behave differently, but the important parts of who they are cannot really be changed; and Everyone is a certain kind of person, and they cannot really do anything to change that.* The three items on the measure were ranked on a 5-point scale, with responses ranging from 1, *Strongly disagree*, to 5, *Strongly agree*.

Although Dweck's original Implicit Theories Scale comprises six items (three assessing entity beliefs and three assessing incremental beliefs), Dweck (2000) recommends the use of the entity-only subscale. These items are less cognitively demanding and are therefore considered less susceptible to social desirability bias. In the current study, participants completed the measure twice: once with reference to themselves and once with reference to how they perceived their significant caregiver's beliefs. The use of only the entity items also served to minimize potential repetition effects. Cronbach's alpha coefficients for the entity subscales were 0.68 for youth and 0.72 for caregivers.

Recreational Engagement

To assess the recreational engagement of youth, and to the extent they engaged in recreation with their caregiver, a list of common recreational activities was presented. These recreational items included active recreational activities, such as hiking/running, soccer/rugby/AFL, gymnastics, swimming, and dance, *et cetera*. The participants could select, on a 4-point scale, from 1, *never*, to 4, *a great deal*, how often they engaged in each type of recreational activity. If a participant selected an option of more than *never*, they were then asked to indicate on the same 4-point scale how often they participated in that activity with their significant caregiver.

Demographics

For this study, only three items were provided to assess the participant's demographics. The participants were first asked to provide their gender (male, female, or other), their age (14, 15, 16, 17, or 18), and their country of residence (Australia, New Zealand, the United Kingdom, the United States, or Canada). No data were collected on ethnicity, socioeconomic status, or geographic region (urban vs. rural), limiting the ability to assess contextual variation.

Data Analysis

Data were analyzed using IBM SPSS Statistics (Version 25). A series of multiple linear regression models examined whether youth characteristics moderated the relationship between recreational engagement and well-being outcomes. Well-being was operationalized through four outcomes: DASS-21 subscales (depression, anxiety, stress) and IPPA attachment scores.

Each regression model included recreational engagement as the predictor, one moderator variable (mindset, goal orientation, motivation subscales, or parenting style dimensions), their interaction term, and gender as a covariate. This approach tested one moderator per model to allow clear interpretation and minimize construct overlap. A total of 56 moderation analyses were conducted across all moderator-outcome combinations.

To test for moderation effects, interaction terms were created by standardizing both predictor and moderator variables ($M = 0$, $SD = 1$) and computing their product. Significant interaction terms ($p < .05$) indicated that the strength or direction of association between recreational engagement and well-being varied depending on the moderator level. Simple slopes analyses were conducted for significant interactions to interpret the nature of moderation effects.

Prior to analysis, standard regression assumptions were assessed: normality of residuals was confirmed through histogram and Q-Q plot inspection; linearity was verified through scatterplot examination; homoscedasticity was assessed via residual plots; multicollinearity was evaluated using variance inflation factors (all VIF < 2.0); and influential outliers were identified using standardized residuals and Cook's distance values. All assumptions were satisfactorily met.

Results

A total of 56 moderation analyses were conducted across conceptually distinct predictor-outcome combinations. Of these, seven interaction effects were nominally significant at $p < .05$. Because a large number of interaction tests were performed, a Benjamini-Hochberg false discovery rate (FDR) correction was applied across all 56 interaction-term p-values to control for inflated Type 1 error. Following correction, four interaction effects remained statistically significant ($q < .05$). For each of the significant interactions, simple slopes were examined at ±1 SD of the moderator to aid interpretation. For clarity, only the authoritative parenting interaction is illustrated in Figure 2.

Mindset effects

As shown in Table 1, mindset did not influence the relationship between youths' recreational engagement with caregivers and their well-being.

Table 1. Mindset as a moderator between recreational engagement and well-being.

Dependent Variable	Interaction Term	B	SE	β	*p*	95% CI
Depression	RecCare × Mindset (Youth)	0.020	0.056	.022	.723	[-0.090, 0.130]
	RecCare × Mindset (Caregiver)	0.007	0.059	.007	.906	[-0.110, 0.120]
Anxiety	RecCare × Mindset (Youth)	-0.048	0.054	-.054	.376	[-0.155, 0.059]
	RecCare × Mindset (Caregiver)	-0.008	0.058	-.009	.884	[-0.122, 0.105]
Stress	RecCare × Mindset (Youth)	-0.029	0.055	-.032	.605	[-0.138, 0.080]
	RecCare × Mindset (Caregiver)	-0.011	0.059	-.012	.850	[-0.137, 0.105]
Attachment	RecCare × Mindset (Youth)	0.061	0.056	.069	.269	[-0.049, 0.171]
	RecCare × Mindset (Caregiver)	-0.081	0.059	-.088	.168	[-0.196, 0.030]

Note: Only the interaction component of the results are presented in the table.

Goal orientation effects

The goal orientation of youth did influence the relationship between youth's recreational engagement with caregivers and their wellbeing. As table 2 below reveals, the task orientation of youth influences their feelings of depression when they engage in recreation with their caregivers (p = .011). Specifically, when the task orientation of youth is high—that is youth prioritize skill development—then recreational engagement with caregivers was positively related to depression. However, this effect did not remain statistically significant after FDR correction and is therefore not interpreted further.

Table 2. Goal orientation as a moderator between recreational engagement and well-being.

Dependent Variable	Interaction Term	B	SE	β	*p*	95% CI
Depression	RecCare × Ego Orientation (Youth)	0.048	0.068	.053	.476	[-0.090, 0.180]
	RecCare × Task Orientation (Youth)	0.181	0.071	.210	.011	[0.042, 0.320]
	RecCare × Ego Orientation (Caregiver)	-0.030	0.067	-.035	.653	[-0.155, 0.105]
	RecCare × Task Orientation (Caregiver)	-0.057	0.070	-.067	.414	[-0.196, 0.080]
Anxiety	RecCare × Ego Orientation (Youth)	0.122	0.066	.136	.065	[-0.008, 0.252]
	RecCare × Task Orientation (Youth)	0.059	0.069	.069	.394	[-0.076, 0.194]
	RecCare × Ego Orientation (Caregiver)	-0.099	0.065	-.116	.129	[-0.226, 0.028]
	RecCare × Task Orientation (Caregiver)	0.067	0.068	.079	.330	[-0.066, 0.200]
Stress	RecCare × Ego Orientation (Youth)	0.108	0.066	.119	.105	[-0.022, 0.238]
	RecCare × Task Orientation (Youth)	0.124	0.069	.144	.075	[-0.012, 0.260]
	RecCare × Ego Orientation (Caregiver)	-0.062	0.065	-.072	.341	[-0.190, 0.066]
	RecCare × Task Orientation (Caregiver)	0.001	0.069	.001	.985	[-0.134, 0.136]
Attachment	RecCare × Ego Orientation (Youth)	-0.001	0.061	-.001	.985	[-0.121, 0.119]
	RecCare × Task Orientation (Youth)	0.040	0.064	.046	.535	[-0.086, 0.166]
	RecCare × Ego Orientation (Caregiver)	0.103	0.060	.120	.088	[-0.015, 0.221]
	RecCare × Task Orientation (Caregiver)	-0.116	0.063	-.138	.066	[-0.241, 0.008]

Note: Only the interaction component of the results are presented in the table.

Motivation effects

As Table 3 reveals, several motivation-related interactions were nominally significant at $p < .05$. After FDR correction, only external regulation remained a significant moderator of the association between recreational engagement and depression, anxiety, and stress ($q < .05$). Specifically, higher external regulation strengthened the positive association between recreational engagement with caregivers and psychological distress outcomes. Although the interaction involving identified regulation and attachment was nominally significant ($p = .008$), this interaction did not remain significant after FDR correction and should be interpreted cautiously.

Table 3. Motivation as a moderator between recreational engagement and well-being.

Dependent Variable	Interaction Term	B	SE	β	*p*	95% CI
Depression	RecCare × Amotivation	-0.012	0.056	-.012	.836	[-0.122, 0.098]
	RecCare × External Regulation	0.172	0.055	.182	.002	[0.063, 0.281]
	RecCare × Introjected Regulation	-0.067	0.054	-.070	.215	[-0.173, 0.039]
	RecCare × Identified Regulation	-0.013	0.080	-.013	.874	[-0.170, 0.144]
	RecCare × Intrinsic Regulation	0.159	0.071	.162	.026	[0.019, 0.298]
Anxiety	RecCare × Amotivation	0.008	0.055	.009	.882	[-0.100, 0.116]
	RecCare × External Regulation	0.185	0.055	.198	.001	[0.077, 0.292]
	RecCare × Introjected Regulation	-0.075	0.053	-.080	.157	[-0.179, 0.029]
	RecCare × Identified Regulation	0.015	0.079	.016	.851	[-0.140, 0.170]
	RecCare × Intrinsic Regulation	0.107	0.070	.110	.128	[-0.030, 0.244]
Stress	RecCare × Amotivation	-0.018	0.056	-.019	.750	[-0.128, 0.092]
	RecCare × External Regulation	0.193	0.056	.206	.001	[0.083, 0.303]
	RecCare × Introjected Regulation	-0.058	0.054	-.061	.281	[-0.164, 0.048]
	RecCare × Identified Regulation	0.060	0.080	.064	.456	[-0.097, 0.217]
	RecCare × Intrinsic Regulation	0.125	0.071	.128	.080	[-0.014, 0.264]
Attachment	RecCare × Amotivation	0.049	0.059	.053	.403	[-0.067, 0.165]
	RecCare × External Regulation	-0.083	0.059	-.088	.161	[-0.199, 0.033]
	RecCare × Introjected Regulation	-0.068	0.057	-.072	.229	[-0.180, 0.044]
	RecCare × Identified Regulation	0.227	0.085	.242	.008	[0.060, 0.393]
	RecCare × Intrinsic Regulation	-0.081	0.075	-.084	.279	[-0.228, 0.066]

Note: Only the interaction component of the results are presented in the table.

Table 4. Results from the FDR analysis

Outcome	Interaction Term	B	SE	95% CI	p	q (FDR)
Depression	RecCare × External Regulation	0.172	0.055	[0.063, 0.281]	.002	.030*
Anxiety	RecCare × External Regulation	0.185	0.055	[0.077, 0.292]	<.001	.023*
Stress	RecCare × External Regulation	0.193	0.056	[0.083, 0.303]	<.001	.023*

Parenting style effects

Authoritative parenting significantly moderated the relationship between recreational engagement and attachment (β = −.103, p = .002). This interaction indicates that the association between recreational engagement and attachment differed across levels of authoritative parenting. Simple slopes analyses (see Figure 2) showed that at lower levels of authoritative parenting, greater recreational engagement with caregivers was associated with lower secure attachment, whereas at higher levels of authoritative parenting, recreational engagement was positively associated with secure attachment. This interaction remained statistically significant following Benjamini–Hochberg correction. Thus, authoritative parenting may buffer against potential relational costs of caregiver involvement in recreation.

Table 5. Parenting style as a moderator between recreational engagement and well-being.

Dependent Variable	Interaction Term	B	SE	β	*p*	95% CI
Depression	RecCare × Authoritative Parenting	0.039	0.047	.048	.405	[-0.053, 0.131]
	RecCare × Authoritarian Parenting	0.008	0.056	.010	.881	[-0.102, 0.118]
	RecCare × Permissive Parenting	0.029	0.056	.037	.602	[-0.081, 0.139]
Anxiety	RecCare × Authoritative Parenting	0.024	0.046	.029	.603	[-0.066, 0.114]
	RecCare × Authoritarian Parenting	0.002	0.054	.002	.971	[-0.104, 0.108]
	RecCare × Permissive Parenting	0.015	0.054	.019	.787	[-0.091, 0.121]
Stress	RecCare × Authoritative Parenting	0.062	0.047	.076	.187	[-0.030, 0.154]
	RecCare × Authoritarian Parenting	-0.005	0.056	-.006	.935	[-0.115, 0.105]
	RecCare × Permissive Parenting	0.023	0.056	.029	.684	[-0.087, 0.133]
Attachment	RecCare × Authoritative Parenting	-0.083	0.027	-.103	.002	[-0.136, -0.030]
	RecCare × Authoritarian Parenting	0.011	0.032	.014	.724	[-0.052, 0.074]
	RecCare × Permissive Parenting	0.013	0.032	.016	.692	[-0.050, 0.076]

Note: Only the interaction component of the results are presented in the table.

Table 6. Results from the FDR analysis

Outcome	Interaction Term	B	SE	95% CI	p	q (FDR)
Attachment	RecCare × Authoritative Parenting	−0.083	0.027	[−0.136, −0.030]	.002	.030*

Figure 2 depicts the significant interaction effect of authoritative parenting on the association between recreational engagement with caregivers and attachment.

	Recreation with Caregivers z = -1	Recreation with Caregivers z = 1
Authoritative z = -1	0.114769	0.346
Authoritative z = 1	-0.114769	-0.432

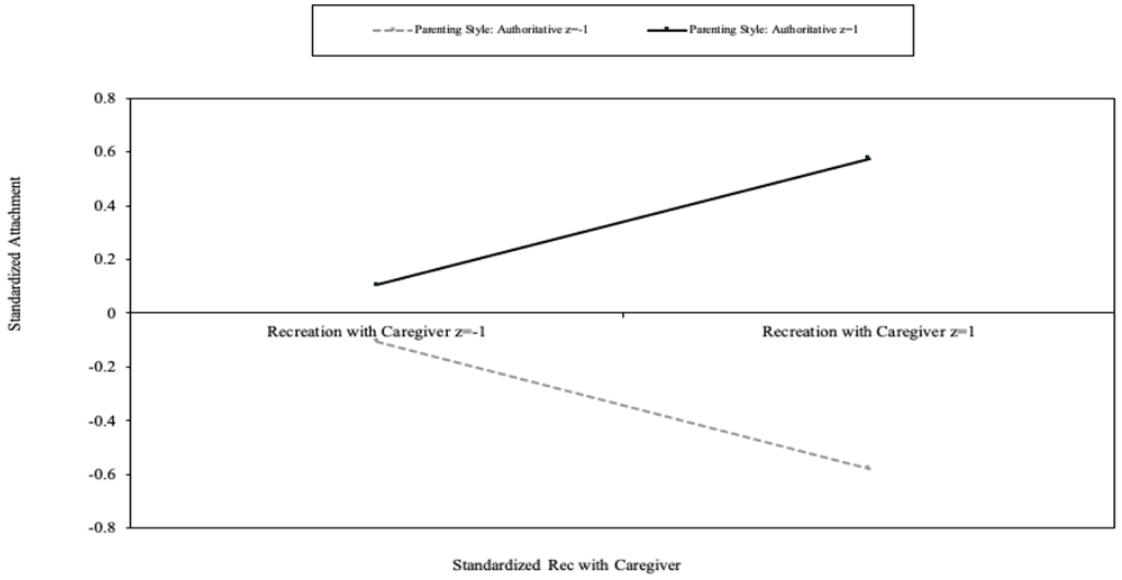

Figure 2. Authoritative parenting style moderating recreational engagement with a caregiver and attachment.

Discussion

This study examined how personal and relational factors moderate the relationship between caregiver-youth recreational engagement and adolescent well-being. Drawing on attachment theory, self-determination theory, and self-expansion theory, the findings reveal that shared recreation's impact depends on motivational alignment and relational quality—challenging assumptions about universal benefits of family activities. These patterns both confirm and extend prior research on autonomy, motivation, and family dynamics, while revealing important nuances about when shared activities optimize versus undermine adolescent well-being.

Three hypotheses were tested: (1) intrinsically motivated youth would experience greater well-being when engaging in recreation with caregivers; (2) youth with growth mindsets and task-oriented goals would report higher well-being when engaging in recreation with caregivers; and (3) youth perceiving authoritative parenting would show enhanced well-being and attachment when engaging in recreation with caregivers. Results provided mixed support for these predictions, revealing important nuances about when caregiver involvement optimizes versus undermines outcomes. Importantly, following Benjamini-Hochberg correction for multiple testing, only four interactions remained statistically significant; therefore, interpretation focused primarily on authoritative parenting and external regulation, whereas other nominal effects should be considered exploratory.

When Shared Recreation Enhances Well-being

Consistent with the third hypothesis, authoritative parenting—characterized by warmth and autonomy support—was associated with stronger attachment during shared recreation. This interaction remained significant after FDR correction. Youth who perceived their caregivers as highly authoritative reported greater attachment security, whereas those who perceived their caregivers as embodying low levels of the authoritative parenting style showed reduced attachment during joint activities. This aligns with attachment theory's emphasis on sensitive responsiveness: when caregivers participate supportively without being intrusive or controlling, recreational contexts become opportunities for relational deepening (Bowlby, 1988).

This finding aligns with previous research demonstrating that authoritative parenting promotes positive outcomes across various contexts (Chan & Koo, 2011) and that parental autonomy support during activities enhances well-being (Fousiani et al., 2013; Grolnick & Ryan, 1989). Together, these results suggest that shared recreational contexts may strengthen relational bonds when caregiver involvement is experienced as supportive rather than intrusive. Although identified regulation showed a nominal interaction with attachment prior to correction, this effect did not remain statistically significant following FDR adjustment and should therefore be interpreted cautiously.

The Complexity of Motivation and Goal Orientation

Contrary to the first hypothesis, intrinsic regulation showed a nominal interaction with distress outcomes, such that youth reported higher psychological distress during caregiver involvement in recreation. However, this effect did not remain statistically significant after FDR correction and should therefore be considered exploratory. Although counterintuitive, this pattern may reflect situations in which caregiver participation is experienced as autonomy-limiting by adolescents who value self-directed engagement. This interpretation aligns with research on helicopter parenting, which indicates that excessive parental involvement—even when well-intentioned—can undermine adolescent autonomy and increase anxiety (Schiffrin et al., 2014). Related work suggests that adolescents require opportunities for autonomous recreation to support self-regulation and identity development (Smetana, 2011; Steinberg & Silk, 2002), and that parental over-involvement during activities can paradoxically reduce intrinsic motivation (Guay et al., 2017).

From a self-determination theory perspective, intrinsically motivated youth may experience recreation as a domain for self-endorsed exploration; caregiver involvement perceived as evaluative or directive may therefore undermine autonomy satisfaction. Self-expansion theory similarly suggests that such youth may conceptualize recreation as a space for individual growth, where caregiver direction constrains opportunities for self-discovery (Aron et al., 2013).

However, alternative explanations warrant consideration. First, intrinsic motivation was assessed using the BREQ-2, which measures general exercise motivation rather than motivation for caregiver-involved recreational activities specifically; this measurement-domain mismatch may partially account for the observed pattern. Second, the cross-sectional design precludes causal inference. Third, the study assessed frequency but not quality or style of caregiver involvement, leaving open the possibility that autonomy-supportive versus controlling participation differentially influences outcomes.

Finally, the broader pandemic context may have amplified autonomy-related tensions. Given the number of moderation analyses conducted, this nominal finding should be interpreted cautiously until replicated using domain-specific motivation measures and corrected multiple-testing frameworks.

In contrast, external regulation emerged as the most consistent moderator after correction for multiple testing, strengthening the association between recreational engagement with caregivers and higher depression, anxiety, and stress. This aligns with self-determination theory, suggesting that externally pressured participation may amplify feelings of control and contribute to distress. Although modest in magnitude, this pattern represents one of the clearest findings in the present study. Task orientation also showed a nominal interaction with depression prior to correction; however, this effect did not remain significant following FDR adjustment and should be interpreted cautiously.

With respect to cognitive factors, mindset showed no significant moderation effects. This pattern may indicate that proximal motivational experiences—specifically whether youth feel autonomous versus controlled during activities—exert stronger influence on immediate well-being than more distal cognitive beliefs about ability malleability. This finding suggests that how youth experience participation matters more than how they conceptualize ability in predicting responses to caregiver involvement. Alternatively, mindset may operate through long-term developmental processes not captured in this cross-sectional design, such as shaping how youth interpret feedback over time rather than directly moderating engagement effects.

Implications for Practice

These findings offer actionable guidance for optimizing family recreation. Rather than assuming shared activities universally benefit youth, caregivers and practitioners should attend to the motivational and relational context in which recreation occurs. In particular, externally pressured participation was associated with poorer well-being outcomes, suggesting that caregiver involvement may be most beneficial when it is autonomy-supportive rather than controlling. Caregivers should allow adolescents to select activities, emphasise enjoyment over performance, and engage in ways that foster warmth and responsiveness. In some cases, indirect support (e.g., facilitating access or expressing interest) may be more helpful than direct participation, particularly when adolescents experience involvement as pressured.

Theoretical Contributions

This study's integration of three theoretical frameworks advances understanding beyond simplistic assumptions that family togetherness benefits youth. Attachment theory helps explains why authoritative parenting may enhance outcomes; self-determination theory clarifies why motivation moderates the effects (such as why threats to autonomy can outweigh relational benefits); and self-expansion theory illuminates why intrinsically motivated youth may experience involvement as constraining. Together, these frameworks suggest recreational engagement enhances well-being when the activity simultaneously satisfies relatedness, autonomy, and competence needs—when one need is threatened, net effects may be negative despite relational benefits. These conclusions are primarily supported by the corrected effects involving authoritative parenting and external regulation. Overall, these findings highlight that the developmental implications of caregiver–youth recreation depend less on participation itself than on the motivational and relational context in which it occurs.

Conclusions and Recommendations

This study examined how personal and relational factors shape well-being outcomes when adolescents engage in recreational activities with caregivers. Following correction for multiple testing, two primary moderation patterns were supported. First, external regulation consistently strengthened the association between recreational engagement and higher psychological distress (depression, anxiety, and stress), suggesting that participation experienced as pressured or obligatory may undermine well-being during caregiver involvement. Second, authoritative parenting was associated with stronger attachment outcomes, indicating that caregiver recreation may be most beneficial within warm and autonomy-supportive relational contexts. Other nominal interaction effects did not remain significant after correction and should be considered exploratory.

Although the observed interaction effects were modest, these findings highlight that caregiver-youth recreation is a context-dependent resource. When involvement occurs in supportive, autonomy-respecting relationships, shared activities may foster connection and attachment. In contrast, when participation is externally pressured, recreational engagement may coincide with poorer well-being outcomes. Practically, caregivers may benefit from emphasising autonomy support, responsiveness, and enjoyment rather than obligation or control.

The study's integration of three theoretical frameworks, the multi-country sample across comparable Western contexts, and its data collection during COVID-19 provided unique insight into family dynamics under conditions of heightened proximity. Anonymous online recruitment reduced social desirability bias and enabled inclusion of adolescents who might otherwise be excluded from studies requiring parental consent (Diviak et al., 2004; Santelli et al., 2003).

However, several limitations should be acknowledged. The cross-sectional design precludes causal inference; longitudinal research is needed to establish directionality and intervention effects. Reliance on self-report introduces potential bias, as youth perceptions of caregiver behavior reflect subjective experience. Incorporating multi-informant data (e.g. caregiver reports or observational measures) would strengthen validity. The sample, drawn from five Western, individualistic countries and limited to ages 14-18, restricts generalizability to younger populations and collectivists cultures, highlighting the need for cross-cultural and developmental replication. Recruitment through Pollfish may have introduced selection bias, and the decision not to collect data on contextual variables such as ethnicity, socioeconomic status, or family structure further limits the understanding and generalizability of these findings. The fact that data were collected during COVID-19 may also limit generalizability, as pandemic-related stress and altered routines could have amplified both positive and negative dynamics. Finally, measuring frequency rather than quality or type of recreational engagement may have overlooked important nuances.

Future research should employ longitudinal designs to track developmental changes and test intervention effects. Experimental research randomly assigning families to different involvement styles could test causal hypotheses. Qualitative studies exploring how youth distinguish supportive from intrusive involvement would illuminate underlying mechanisms. Cross-cultural research should examine whether autonomy patterns differ in collectivist contexts. Finally, intervention studies could test whether training caregivers to recognize externally controlled versus autonomy-supportive participation motivational profiles and adjust involvement accordingly improves outcomes- potentially helping them distinguish facilitative from directive support and recognize signs of intrusive involvement.

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